FSS MODIFICATIONS

FSS Deployment – In FY 2011, the Postal Service had significant deployments of the Flats Sequencing System (FSS). In an effort to take full advantage of the FSS equipment, the Postal Service introduced optional preparation rules that introduced two container levels - FSS Scheme and FSS facility containers - and a new bundle level - FSS bundle. To account for the preparation rule changes and to continue to accurately measure flats costs, several modifications have been made to the flats costs models.

FSS Facility Containers - FSS facility containers are similar to SCF containers. Both container types contain co-mingled mail for multiple Incoming Secondary (IS) sort plans and Carrier Route (CR) mail that require sortation and separation on bundle sorting equipment. The significant difference between the SCF container and the FSS Facility container is that all mail on the container is required to destinate in a zone that is processed on the FSS. The FSS Facility container was introduced so that FSS mail could be identified expeditiously and processed on bundle sorting equipment to accommodate the FSS processing window ahead of mail with a later processing window. Operationally, SCF and FSS Facility containers are handled in similar manners. Both containers remain intact until they arrive at the facility in-charge of the Incoming Primary (IP) bundle sort where they will be taken to the bundle sorting operation and the contents dumped and sorted.

Because the two containers are similar they have identical logic in the model. Because downflow density data is not yet available for FSS Facility containers the downflow density data for SCF containers is used as a proxy. Since the downflow density parameters are the only potential source of difference between the two containers, the use of proxy SCF information yields identical cost estimates of the two containers.

FSS Scheme Containers - FSS Scheme containers are defined as a container that contains mail for a single FSS scheme. The container can only contain 5-Digit, 5-Digit Scheme, Carrier Route, or FSS bundles. For mail destinating in an FSS zone, the 5-Digit and Carrier Route separations are of no value as all the mail is to be worked on the same scheme. Operationally it is preferred that all mail be bundled in uniform sized FSS bundles. The 5-Digit and Carrier route bundles are permitted while mailers adjust to FSS preparation.

FSS Scheme containers flow through the postal network intact until they arrive at the destinating FSS facility where they are taken directly to the FSS operation. The advantage of FSS Scheme containers is that the mail on these containers can bypass bundle sortation and be sent directly to the prep operation to be inducted into the FSS.

FSS scheme pallets are modeled like SCF pallets with the exception that FSS Scheme pallets do not incur pallet dumping costs as the pallets can be loaded directly into the FSS prep operation. While not yet authorized, the model included structure for FSS Scheme sacks so as to be prepared if it is determined to be advantageous to allow FSS Facility sacks the future. FSS Facility sacks are modeled exactly like SCF sacks.

FSS Bundles – FSS bundles are simply a collection of pieces that destinate in a FSS scheme. The FSS bundle is intended to eventually replace 5-Digit and Carrier Route bundles for mail destinating in FSS zones. The 5-Digit and Carrier Route presort is of no operational value for mail destinating in FSS zones as all mail will be sequenced on the FSS and the presort does not enable mail to skip any processing steps. The advantage of preparing this mail in FSS bundles rather than 5-Digit or Carrier Route bundles is that FSS bundle preparation enables customers to enter fewer bundles that are more homogeneous in size.

FSS bundles may be placed on ADC, SCF, 3-Digit, FSS Facility or FSS scheme containers. Once removed from entry containers these bundles flow through the processing network until they have been sorted to the destination FSS Scheme where the bundles are opened and prepped for FSS induction. With the exception of FSS bundles on FSS scheme pallets the bundle processing logic in the model is similar for FSS and 5-Digit bundles. FSS bundles and 5-Digit bundles differ in that FSS bundles will be opened and distributed at the DSCF while a portion of 5-Digit bundles will flow to the delivery unit for piece distribution and will therefore incur additional cost while bundled. FSS bundles on FSS Scheme pallets incur no bundle handling costs. The downflow densities for FSS bundles are not yet available and are proxied with the densities of Carrier Route bundles.

Piece Distribution in FSS

IS Coverage factor adjustments – The introduction of the FSS bundle requires that the Incoming Secondary coverage factors be adjusted in order to accurately estimate the processing costs of mail entered in 5-Digit bundles. Coverage factors are used to measure the probability that a piece destinates at a facility with a given equipment configuration.[1] The coverage factors are developed using ODIS destinating volumes. By using ODIS destinating volumes an implicit assumption is made that the coverage factors are invariant to bundle presort level. With the introduction of FSS bundles this assumption cannot be valid for 5-Digit bundles so the coverage factors must be recalculated for these bundles.

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[1] This is not the same as the probability that a piece will be worked on a given piece of equipment. The incidence of being worked on a piece of equipment depends on additional flow parameters. While it is necessary for a piece to destinate at a facility with a piece of equipment in order to be worked on that equipment it is not sufficient.

All facilities with FSS are also equipped with AFSM100 machines. Thus any mail migrating from 5-Digit bundles to FSS bundles will have necessarily destinated in a facility equipped with an AFSM 1000. Mail that remains in 5-Digit bundles post-FSS will have higher incidence of destinating at facilities that either have no mechanization or only have FSM 1000. As it is impractical to enumerate destinating volume by bundle level the derivation of the coverage factor adjustment is deduced mathematically.

The adjustment begins by calculating the proportion of mail destinating in FSS zones that has migrated to FSS bundles (FSSMIG) by multiplying the proportion of flats volume worked on the FSS by the proportion FSS destinating volume that arrives in FSS bundles. The Postal Service initially proposes to use machine counts MODS FSS operations to calculate the proportion if flats volume worked on FSS machines and Mail.dat files to calculate the proportion of volume destinating in FSS zones that are prepared in FSS bundles. The current model uses assumptions since mailers could not supply documentation of FSS preparation until the beginning of Quarter 4 of FY2011 meaning there has not been sufficient time to derive estimates from the Mail.dat data.

The coverage factors for 5-Digit and CR bundles are calculated from the initial coverage factors using the following formulas:

FSS – (National FSS proportion – FSSMIG) / (1-FSSMIG)
Manual - (Initial manual) / (1-FSSMIG)
FSM 1000 – (Initial FSM 1000) / (1-FSSMIG)

The AFSM 100 coverage factors are calculated residually by proportionally sharing the residual proportions. Here an assumption is made that the volume migrating to FSS bundles is independent of whether or not an AFSM 100 destination facility also has an FSM 1000.

Non-IS coverage factors – Coverage factors used for 3-Digit, ADC and MADC bundles are only adjusted to reflect FSS processing. The coverage factors for Manual, and FSM 1000 are unchanged from the initial factors. The FSS coverage factor is taken to be the national proportion worked on FSS equipment. The AFSM 100 coverage factors are calculated residually by proportionally sharing the residual proportions. Here the assumption is made that the volume migrating to FSS bundles is independent of whether or not an AFSM 100 destination facility also has an FSM 1000.

Additional Adjustments – While estimating Mechanized IS percentage as the ratio of MODS IS flats volume (adjusted for letters being worked on flats mechanization) to the sum of RPW volume of Single Piece, MADC, ADC, 3-Digit, 5-Digit, and CR volume in broken bundles, the FSS volume should be considered as well. The FSS volume is removed from the denominator because this volume is getting the IS sort on the FSS. To do this, RPW volume for non-HD and non-

Saturation RPW volume (assuming that HD and Saturation will not be processed on FSS) and the MODS FSS volume (MODS FSS volume is reduced to account for letters worked on FSS equipment assuming that the proportion of letters worked as flats on FSS is the same as on other flats equipment) are subtracted. This gives an estimate of the proportion of "FSS eligible" flats (SP, MADC, ADC, 3D, 5D and basic CR) volume to "worked" FSS volume.

Model Changes: FSS and CR Piece Flow Sheets – Two additional sheets have been added to the PER model to account for piece handling costs associated with FSS and CR bundles. The CR sheet is included to capture the piece handling costs associated with CR bundles that destinate in FSS zones. The CR sheet uses the national FSS proportion less the proportion of FSS zone volume migrated to FSS bundles as a measure to the proportion of CR bundles that flow to FSS zones. The model used in this proposal used AFSM 100 acceptance rates to proxy for FSS acceptance rates. The Postal Service intends to analyze FSS operational data to calculate FSS specific acceptance parameters.